

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, said excitation light having a wavelength of 400-410nm.
2. (Withdrawn): The fluorescence observing apparatus as set forth in claim 1, wherein said excitation light emitted from said light source is continuous excitation light and said excitation light irradiation means irradiates said continuous excitation light to said sample.
3. (Original): The fluorescence observing apparatus as set forth in claim 1, wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.
4. (Original): The fluorescence observing apparatus as set forth in claim 1, wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.
5. (Withdrawn): The fluorescence observing apparatus as set forth in claim 2, wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.
6. (Original): The fluorescence observing apparatus as set forth in claim 3, wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

7. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, ~~The fluorescence observing apparatus as set forth in claim 4,~~  
wherein an active layer of said semiconductor laser has InGaN/InGaN quantum cell structure;  
wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

8. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, ~~The fluorescence observing apparatus as set forth in claim 3,~~  
wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current, wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

9. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is

employed as said light source, ~~The fluorescence observing apparatus as set forth in claim 4,~~  
wherein said semiconductor laser is caused to output pulsed excitation light having a peak value  
greater than or equal to a continuous maximum output value of said semiconductor laser by a  
pulse-injecting current wherein said GaN-based semiconductor laser is an InGaN-based  
semiconductor laser.

10. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said  
semiconductor laser is caused to output pulsed excitation light having a peak value greater than  
or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting  
current.

11. (Original): The fluorescence observing apparatus as set forth in claim 8, wherein said  
semiconductor laser is driven so that an integrated value of pulse oscillation output values of said  
semiconductor laser per unit time becomes less than or equal to an integrated value of the  
continuous maximum output values of said semiconductor laser per unit time.

12. (Withdrawn): The fluorescence observing apparatus as set forth in claim 1, further  
comprising temperature-controlling means for controlling said semiconductor laser to a  
predetermined temperature and below.

13. (Withdrawn): The fluorescence observing apparatus as set forth in claim 2, further  
comprising temperature-controlling means for controlling said semiconductor laser to a  
predetermined temperature and below.

14. (Withdrawn): The fluorescence observing apparatus as set forth in claim 3, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

15. (Withdrawn): The fluorescence observing apparatus as set forth in claim 4, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

16. (Withdrawn): The fluorescence observing apparatus as set forth in claim 7, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

17. (Withdrawn): The fluorescence observing apparatus as set forth in claim 8, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

18. (Withdrawn): The fluorescence observing apparatus as set forth in claim 11, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

19. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source. ~~The fluorescence observing apparatus as set forth in claim 1,~~ wherein said semiconductor laser is a broad area type semiconductor laser.

20. (Withdrawn): The fluorescence observing apparatus as set forth in claim 2, wherein said semiconductor laser is a broad area type semiconductor laser.

21. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source. ~~The fluorescence observing apparatus as set forth in claim 3,~~ wherein said semiconductor laser is a broad area type semiconductor laser; wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

22. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source. ~~The fluorescence observing apparatus as set forth in claim 4,~~ wherein said semiconductor laser is a broad area type semiconductor laser; wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

23. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is a broad area type semiconductor laser.

24. (Original): The fluorescence observing apparatus as set forth in claim 8, wherein said semiconductor laser is a broad area type semiconductor laser.

25. (Original): The fluorescence observing apparatus as set forth in claim 11, wherein said semiconductor laser is a broad area type semiconductor laser.

26. (Withdrawn): The fluorescence observing apparatus as set forth in claim 12, wherein said semiconductor laser is a broad area type semiconductor laser.

27. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, ~~The fluorescence observing apparatus as set forth in claim 1,~~ wherein said semiconductor laser is a surface emission type semiconductor laser.

28. (Withdrawn): The fluorescence observing apparatus as set forth in claim 2, wherein said semiconductor laser is a surface emission type semiconductor laser.

29. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, ~~The fluorescence observing apparatus as set forth in claim 3,~~ wherein said semiconductor laser is a surface emission type semiconductor laser; wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

30. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source,~~The fluorescence observing apparatus as set forth in claim 4,~~ wherein said semiconductor laser is a surface emission type semiconductor laser; wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

31. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is a surface emission type semiconductor laser.

32. (Original): The fluorescence observing apparatus as set forth in claim 8, wherein said semiconductor laser is a surface emission type semiconductor laser.

33. (Original): The fluorescence observing apparatus as set forth in claim 11, wherein said semiconductor laser is a surface emission type semiconductor laser.

34. (Withdrawn): The fluorescence observing apparatus as set forth in claim 12, wherein said semiconductor laser is a surface emission type semiconductor laser.

35. (Original): The fluorescence observing apparatus as set forth in claim 1, wherein said semiconductor laser is an array type semiconductor laser.

36. (Withdrawn): The fluorescence observing apparatus as set forth in claim 2, wherein said semiconductor laser is an array type semiconductor laser.

37. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to

a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, ~~The fluorescence observing apparatus as set forth in claim 3,~~ wherein said semiconductor laser is an array type semiconductor laser-; wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

38. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source, ~~The fluorescence observing apparatus as set forth in claim 4,~~ wherein said semiconductor laser is an array type semiconductor laser-; wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

39. (Original): The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is an array type semiconductor laser.

40. (Original): The fluorescence observing apparatus as set forth in claim 8, wherein said semiconductor laser is an array type semiconductor laser.

41. (Original): The fluorescence observing apparatus as set forth in claim 11, wherein said semiconductor laser is an array type semiconductor laser.

42. (Withdrawn): The fluorescence observing apparatus as set forth in claim 12, wherein said semiconductor laser is an array type semiconductor laser.



43. (Original): The fluorescence observing apparatus as set forth in claim 19, wherein said semiconductor laser is an array type semiconductor laser.

44. (Original): The fluorescence observing apparatus as set forth in claim 27, wherein said semiconductor laser is an array type semiconductor laser.

45. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source. ~~The fluorescence observing apparatus as set forth in claim 3,~~ further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light; wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

46. (Currently Amended): A fluorescence observing apparatus comprising: a light source for emitting excitation light; excitation light irradiation means for irradiating said excitation light to a sample; and fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light, wherein a GaN-based semiconductor laser is employed as said light source. ~~The fluorescence observing apparatus as set forth in claim 4,~~ further comprising visible-light irradiation means for intermittently irradiating visible light to

said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light; wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

47. (Original): The fluorescence observing apparatus as set forth in claim 7, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

48. (Original): The fluorescence observing apparatus as set forth in claim 8, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

49. (Original): The fluorescence observing apparatus as set forth in claim 11, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

50. (Withdrawn): The fluorescence observing apparatus as set forth in claim 12, further comprising visible-light irradiation means for intermittently irradiating visible light to said

sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

51. (Original): The fluorescence observing apparatus as set forth in claim 19, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

52. (Original): The fluorescence observing apparatus as set forth in claim 27, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

53. (Original): The fluorescence observing apparatus as set forth in claim 35, further comprising visible-light irradiation means for intermittently irradiating visible light to said sample; and normal image forming means for forming a normal image of said sample illuminated with said visible light, wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

54. (Original): The fluorescence observing apparatus as set forth in claim 45, wherein the irradiation of said excitation light is performed during the time that said normal image forming means is in a vertical blanking period.

AMENDMENT UNDER 37 C.F.R. § 1.111  
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55. (Original): The fluorescence observing apparatus as set forth in claim 3, wherein said pulsed excitation light is formed from a plurality of pulses.
56. (Previously Presented): The fluorescence observing apparatus as set forth in claim 4, wherein a pulsed excitation light is formed from a plurality of pulses.
57. (Previously Presented): The fluorescence observing apparatus as set forth in claim 7, wherein a pulsed excitation light is formed from a plurality of pulses.
58. (Original): The fluorescence observing apparatus as set forth in claim 8, wherein said pulsed excitation light is formed from a plurality of pulses.
59. (Original): The fluorescence observing apparatus as set forth in claim 11, wherein said pulsed excitation light is formed from a plurality of pulses.
60. (Withdrawn): The fluorescence observing apparatus as set forth in claim 12, wherein said pulsed excitation light is formed from a plurality of pulses.
61. (Previously Presented): The fluorescence observing apparatus as set forth in claim 19, wherein a pulsed excitation light is formed from a plurality of pulses.
62. (Previously Presented): The fluorescence observing apparatus as set forth in claim 27, wherein a pulsed excitation light is formed from a plurality of pulses.
63. (Previously Presented): The fluorescence observing apparatus as set forth in claim 35, wherein a pulsed excitation light is formed from a plurality of pulses.
64. (Original): The fluorescence observing apparatus as set forth in claim 45, wherein said pulsed excitation light is formed from a plurality of pulses.